Noise Element

City of Walnut Creek

Adopted by
City Council
October 6, 1975

INTRODUCTION

Noise in urban and suburban areas has been increasingly recognized as a serious problem in the United States. We are all frequently subjected to intrusive and offensive sounds from highway traffic, trains, airplanes, and construction equipment. Too-high noise levels have been shown to produce sleep disturbances, stress, annoyance, and interference with sleep. Noise also has an adverse economic effect; in many noise-impacted areas, property values have fallen drastically.

In response to this concern, the State of California in 1972 adopted Government Code 65302, requiring a noise element in all city and county general plans. The Code is directed toward noise produced by transportation sources, and requires the following:

> "A noise element in quantitative, numerical terms, showing contours of present and projected noise levels associated with all existing and proposed major transportation elements. These include, but are not limited to, the following:
>
> 1. Highways and freeways;
>
> 2. Ground rapid transit systems;
>
> 3. Ground facilities associated with all airports operating under a permit from the State Department of Aeronautics."

Thus, a major product of this noise element is a series of maps which show sources of noise in the Walnut Creek Planning Area. Using these maps, citizens can identify areas impacted by noise and the severity of the noise problem in those areas.

In attempting to reduce the impact of noise from these sources, this Noise Element follows three main goals:

1. To require new developments to meet certain standards for interior noise levels.

2. To reduce noise levels in residential areas already impacted by noise.

3. To ensure that all feasible measures are taken to mitigate noise impacts caused by new roads, road widenings, and commercial developments.

EXISTING CONDITIONS

To evaluate existing noise levels produced by transportation sources in the City, the firm of Earth Metrics, Inc., was hired to produce noise contours for all major roads, freeways and BART. (A Complete description of the methodology used is available in a separate Appendix.) These contours were produced for both 1975 and 1990 conditions, and a series of maps showing the 1975 contours for the entire Walnut Creek Planning Area (See Fig. 1) is included in this element (see pages 20 - 36). These contours give very useful information regarding noise levels in the Planning Area. Before their meaning can be completely understood, however, the way noise is measured must first be explained.

Noise Measurement

Noise is usually measured in decibels. Decibels measure the pressure generated by the movement of sound waves - called sound pressure. Because the human ear is sensitive to an extremely wide range of sound pressure levels, the decibel scale is logarithmic. It ranges from 0 to 140; zero decibels is the lowest level of sound detectable by the human ear, while a jet aircraft at takeoff generates 120 decibels.

It is important to remember that decibels are logarithmic, meaning that a change in decibel level represents a sizeable change in noise level. For example, a 10 decibel (dB) sound is 10 times louder than 0 decibels, while 20 dB is 100 times as loud as 0 dB. Thus, reducing the decibel level slightly may reduce the actual sound level by one half. As a general rule, increasing a noise level by 10 dB makes a sound twice as loud to the average listener. A noise level must be increased by at least five decibels before most people perceive any significant change.

In addition, the total amount of noise generated by two separate noise sources is not computed by simply adding the decibels from each source. For instance, the total noise produced by two jet aircraft, each producing 120 decibels, is not 240 decibels. It instead totals 123 decibels. Table I shows the decibel ratings of certain common sounds.

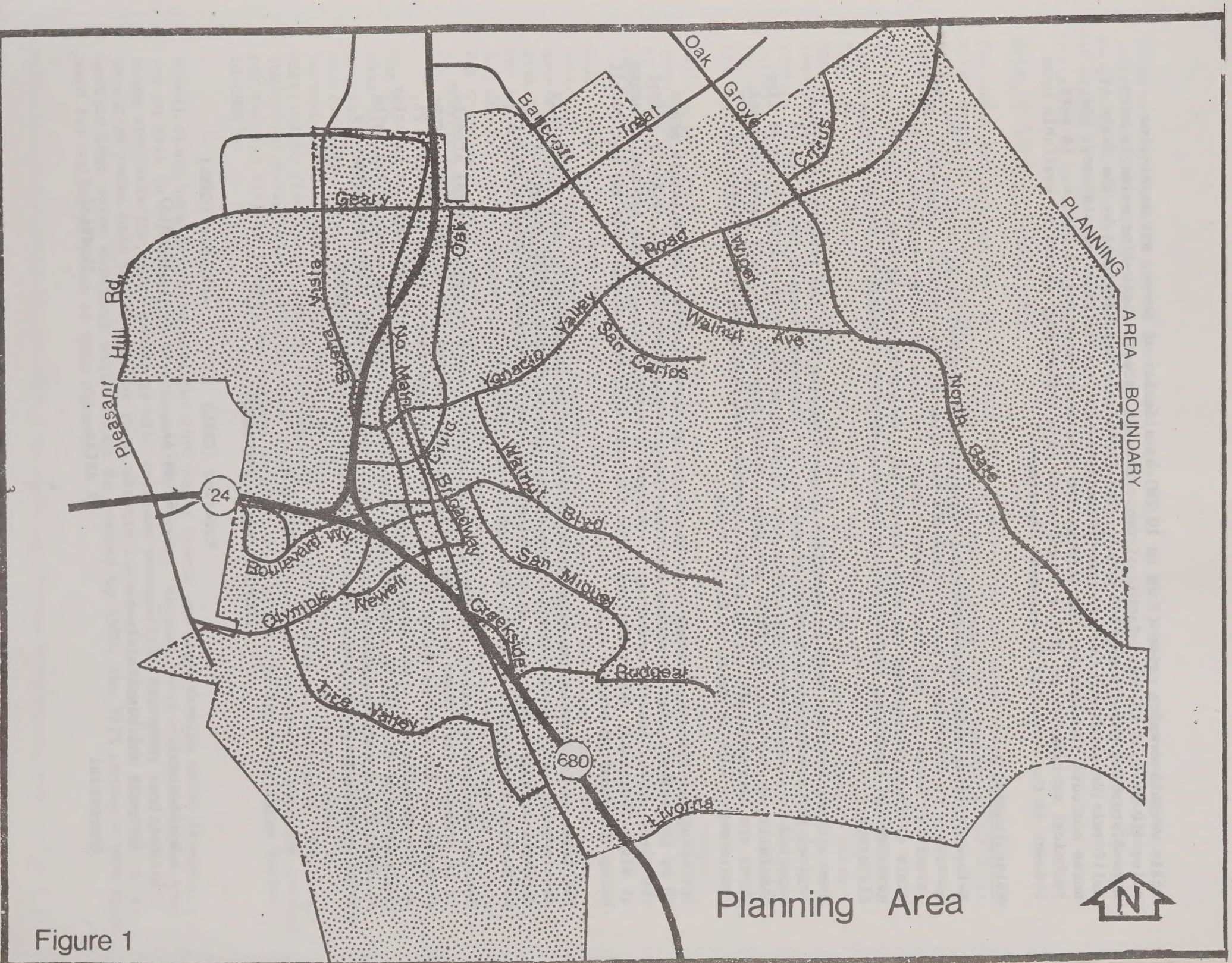
TABLE I

DECIBEL RATINGS OF COMMON SOUNDS

(Robert Baron: Tyranny of Noise)

Source	dB(A)
Helicopter flying overhead	100 - 90
Diesel truck	85 - 80
Vacuum cleaner	75 - 65
Normal speech	70 - 55
Daytime residential noises	50 - 60
Night-time residential noises	50 - 40

A further complication in this Noise Element is that decibel readings have been weighted according to the Community Noise Equivalency Level (CNEL) scale. This CNEL


Oak Grove
Ballcraft
Trail
Geary
Road
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Hill Rd.
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Ygnacio Valley
San Carlos
North Gate
No. Main
Walnut Blvd
Broadway
San Miguel
Boulevard Wy
Olympic
Newell
Creekside
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Tice Valley
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Livorna
24
Planning Area
N

Figure 1

scale weights evening noise (7 PM to 10 PM) by a factor of three, and night-time noise (10 PM to 7 AM) by a factor of ten. This is because night-time noise is much more disturbing than is daytime noise. The CNEL scale has been used by the State of California to establish certain noise standards, and, to maintain consistency, the noise contours included in this element are also shown in terms of CNEL's. (A more technical explanation of CNEL's is contained in a Methodology Appendix, available upon request at the Community Development Department.)

Noise Standards

Before deciding which areas in Walnut Creek have "excessive" noise levels, it is necessary to determine a set of standards for noise in residential, commercial, and industrial areas and the like. Unfortunately, the area of noise standards is in a state of flux. Standards for noise levels have been published by many different governmental agencies, professional groups and advisory committees, and all are different.

Some attempt has been made to associate noise standards with the results of physiological and psychological studies of noise. For instance, hearing damage can be expected in areas where sound levels over 90 dB(A) persist over a long period of time. Similarly, at levels of 85 dB(A) and above, blood pressure and heart rates increase. These are extremely high noise levels, however, and rarely occur in outdoor noise environments such as exist in Walnut Creek.

Psychological effects, however, can be noticed at lower levels. Noise levels above 50 or 60 decibels disrupt normal conversation. Levels above 35 to 45 decibels affect the sleep cycle, causing awakening or changes in sleep state. People exposed to noise at night frequently report feeling tired the next day, even though they may not recall being disturbed by noise.

The State of California has established minimum noise standards for new multifamily development. Any new multifamily development located within a CNEL contour of 60 decibels or higher must have an acoustical analysis to demonstrate that interior noise (due to exterior sources) does not exceed 45 dB(A).

Because the levels used by the State seem reasonable based on psychological studies, it is proposed that these levels be utilized as a standard for all residential construction in the City of Walnut Creek, including single-family homes (see Table 2), and for schools and hospitals. In addition, it is proposed that an exterior noise level of 70 dB(A) be utilized as a standard for commercial construction, with 55 dB(A) for a maximum interior noise level. These standards allow approximately twice as much noise in commercial areas as is in residential areas.

TABLE 2

PROPOSED NOISE STANDARDS

	Exterior (CNEL)	Interior (CNEL)
Residential	60 dB(A)	45 dB(A)
Critical recepters (schools and hospitals)		
Commercial	70 dB(A)	55 dB(A)

These standards should not be considered absolute. In many cases, other land use criteria will dictate placing uses in areas with high noise levels. Some people may be willing to tolerate high noise levels in exchange for the convenience and excitement of living in a downtown area. Thus, these standards should be considered only one criteria, to be weighed along with others in making land use decisions.

Noise Problems in Walnut Creek

The noise contour maps included in this Noise Element show all those areas with excessive noise levels in 1975 in the Walnut Creek Planning Area. Areas with readings of 60 dB(A) or higher are shaded lightly; those with readings of 70 dB(A) are shaded in a darker tone.*

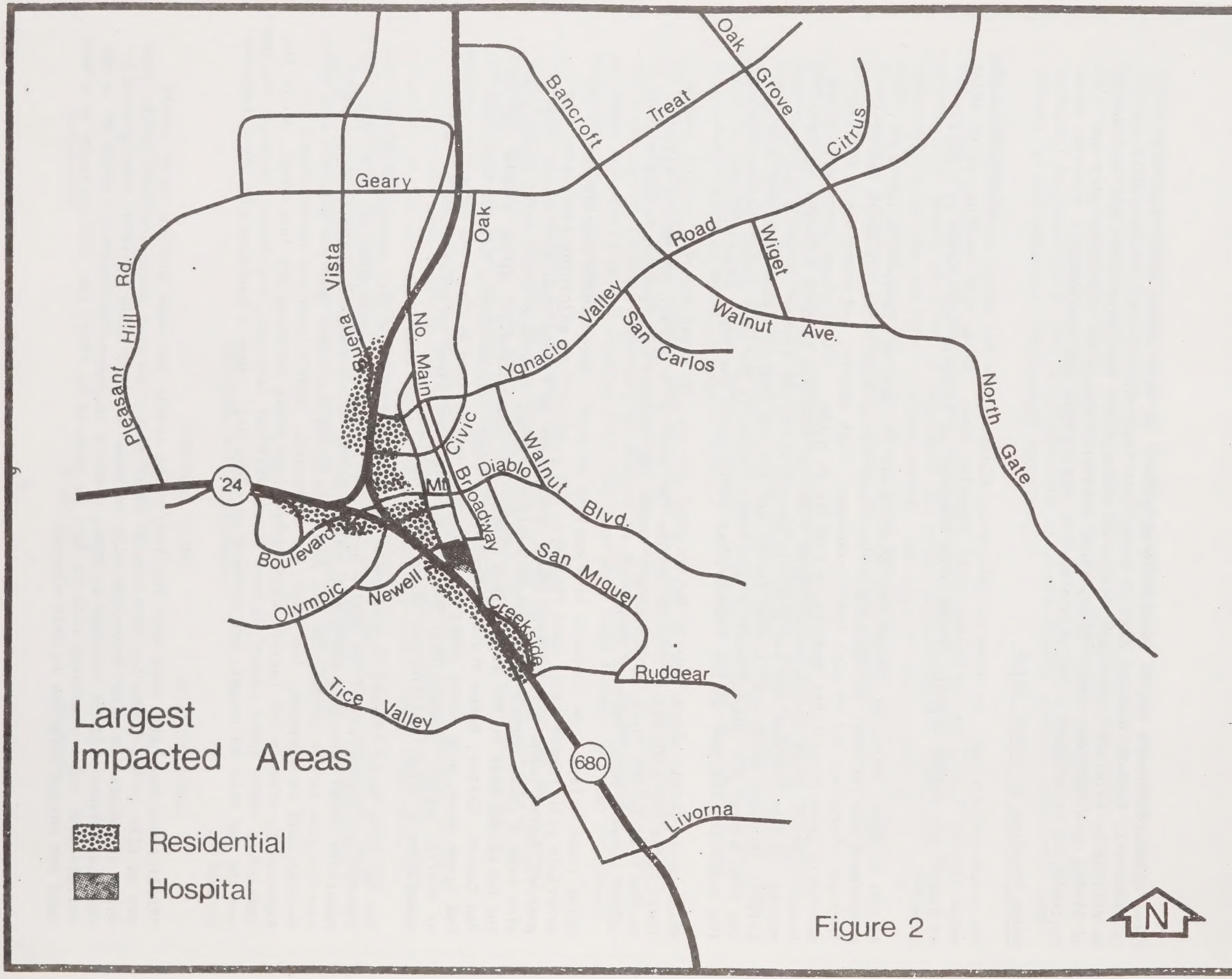
As can be seen, Interstate Route 680, State Route 24, and the Ygnacio Valley Road expressway are the most pervasively intense sources of high noise levels in the City. They are characterized by high traffic volumes, high speeds, and heavy truck traffic, and carry relatively large amounts of traffic at night. All of those areas with noise levels over 70 dB(A) in the Walnut Creek Planning Area are located adjacent to these routes. Noise problems are particularly severe where the freeway is elevated; the largest impacted areas are located there, and include the Creekside apartment area, the Alma Avenue and Almond-Shuey single family areas in the Core Area, Kaiser Hospital, the Parkside area west of the freeway, and portions of Saranap. (See Fig. 2).

While noise levels along Ygnacio Valley Road are over 70 dB(A) for most of its length, fewer homes are affected. This is because the road is at grade, and houses adjacent to the road shield those behind them. Where the freeway is elevated, houses near it cannot provide this "barrier effect".

Major roads differ from freeways in a variety of ways. These roads function as arterials with speeds lower than freeways, and a variety of adjoining land uses. In general, major roads tend to have lower percentages of trucks than do freeways, and also have a lower percentage of night traffic. Thus, they have lower noise levels, and the buildings next to the road shield others very successfully. Along streets such as San Carlos, Citrus, Buena Vista, Walnut Ave., Wiget, Walnut Blvd., Rudgear Road, and Oak Grove Road, only those homes directly next to the road suffer from excessive amounts of traffic noise. Nonetheless, because so many homes front on these streets, they constitute a major contribution to excessive noise.

The Bay Area Rapid Transit System has a varying impact in the City depending on the physical configuration of the system and the types of land uses affected. The line parallels I-680 through a portion of Walnut Creek, and consequently the noise in this section adds to the freeway impact, particularly in the Jones Road and Almond-Shuey areas. Because BART is elevated, its impact is increased. BART's over-all noise impact is expected to rise in the future, when weekend and night services are initiated. While the individual noise level caused by each train will not increase, residents' exposure throughout the day will be longer, and service at night will cause a particularly large increase in CNEL's.

*Predictions have also been made for 1990 noise levels and maps showing these levels are on file in the Community Development Department. Because these contours assume that State standards for noise emissions will decrease substantially by 1990, they generally show that noise will be lessened by then, despite increases in traffic. Since it is not certain that noise standards will in fact be lowered by 1990, the 1975 contours have been used for policy purposes in this element.


Oak
Grove
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Citrus
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Road
Wiget
Oak
Vista
Pleasant Hill Rd.
Walnut Ave.
San Carlos
Ygnacio Valley
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Civic
Broadway
Diablo
Walnut Blvd.
North Gate
24
Boulevard
Olympic
Newell
Creekside
San Miguel
Rudgear
Tice Valley
680
Livorna
Largest
Impacted Areas
Residential
Hospital
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Figure 2

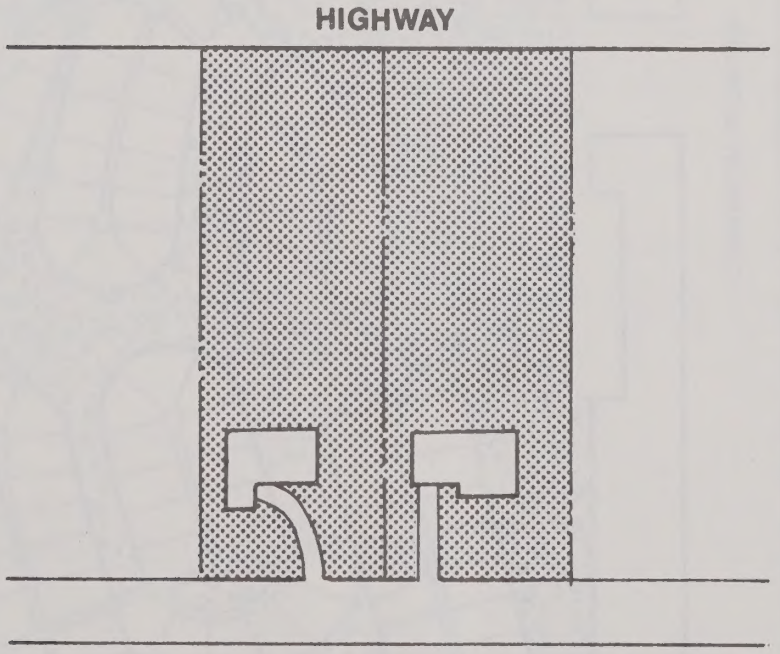
NOISE REDUCTION TECHNIQUES

A variety of physical techniques are available for reducing transportation noise. Two of these techniques, àcoustical site planning and architectural design, are suitable only for new developments. However, the other two, acoustical construction and noise barriers, can be used for both existing and new projects.

Acoustical Site Planning

Acoustical site planning arranges buildings on a parcel of land to minimize noise impacts. Opportunities for successful acoustical site planning are determined by the size of the lot, the terrain, and the zoning. In general, conventional zoning patterns lack the flexibility necessary to permit innovative site planning techniques. However, planned developments, which have been used extensively in Walnut Creek, provide needed flexibility. Acoustical site planning techniques include:

1. Placing as much distance as possible between the noise source and the noise-sensitive activity (see Figure 3).



Houses placed near the front of long, narrow lots have deep rear yards available to act as noise buffers.

Figure 3

2. Placing noise-compatible activities such as parking lots, open space, and commercial facilities between the noise source and the sensitive activity (see Figure 4) .

3. Using buildings as barriers.

4. Orienting noise-sensitive buildings to face away from the noise source.

5. Allowing no houses to front on arterial or collector streets. Such a system has been used in portions of Rudgear Estates.

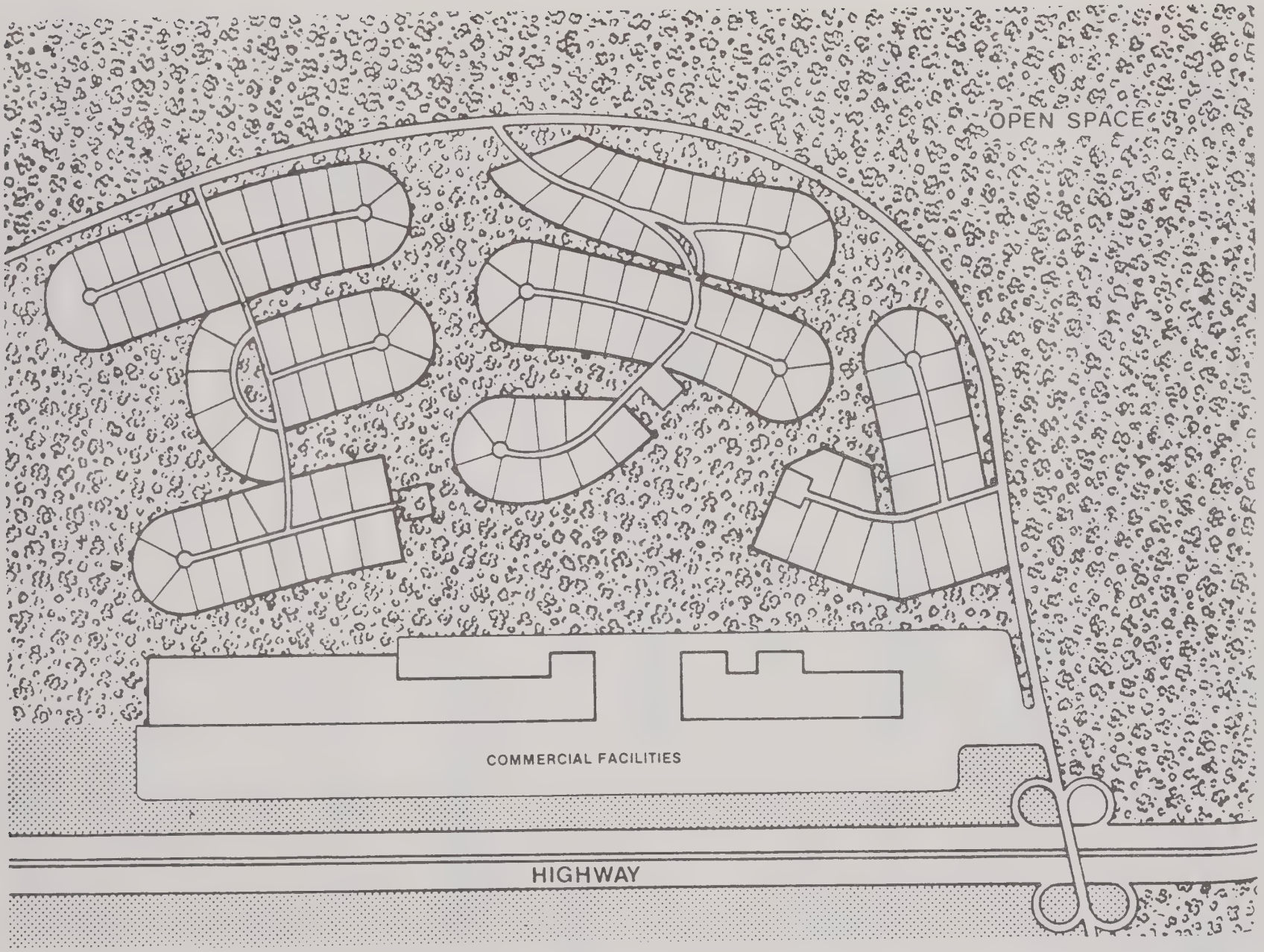


Figure 4

Placement of noise compatible
land uses near highway in
Planned Unit Development

Acoustical Architectural Design

Acoustical architectural design incorporates noise-reducing concepts in the design of individual buildings. The areas of architectural concern include building height, room arrangement, window placement, and balcony and courtyard design. For example, in some cases, noise impacts can be reduced if the building is limited to one story (see Figure 5), and if bedrooms and living rooms are placed on the part of the building which is farthest from the noise source.

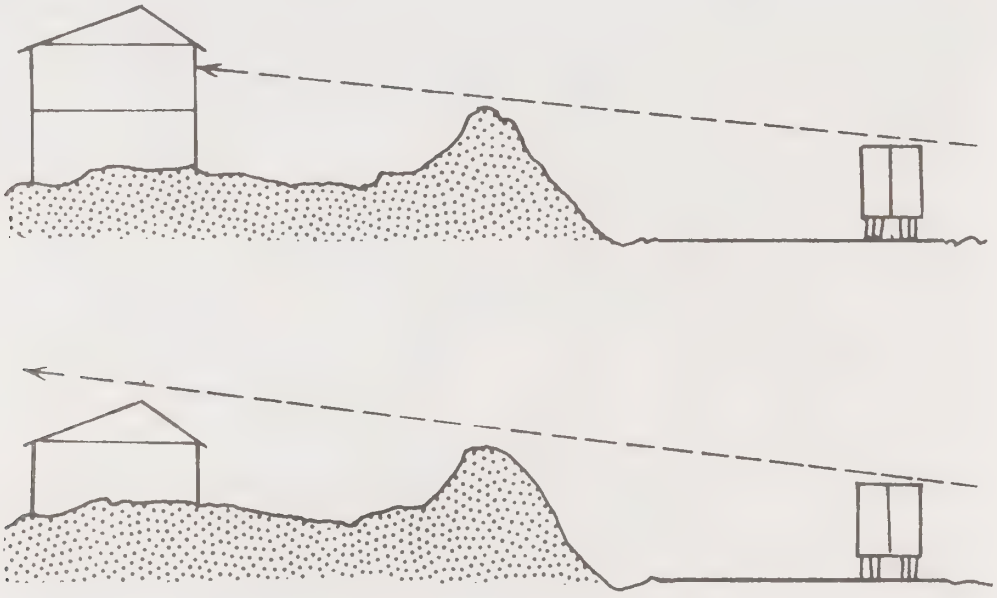


Figure 5

Impact reduced by use of single-story houses.

The standard jutting balcony facing the road may reflect traffic noise directly into the interior of the building (see Figure 6).

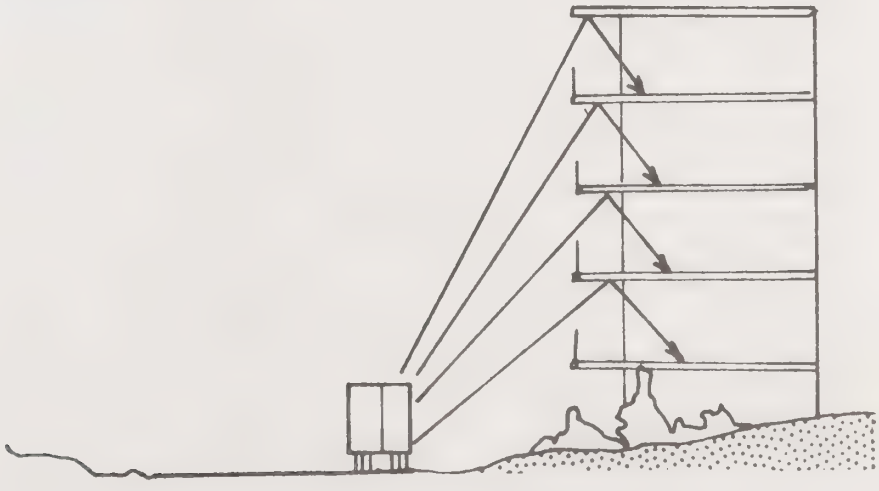


Figure 6

Standard balcony facing road can reflect traffic noise into the interior of the building.

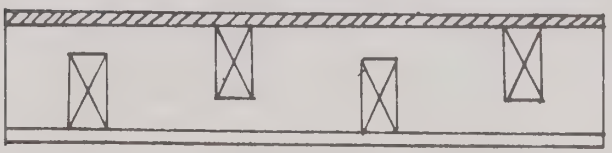
Both of these techniques have the potential to be quite effective (especially acoustical site planning), can be resolved before permits are issued and construction begins, and cost very little. Walnut Creek has in the past utilized acoustical design by requiring one-story buildings along Ygnacio Valley Road.

Acoustical Construction

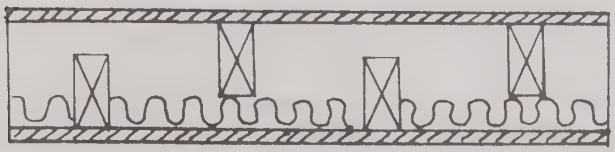
Acoustical building construction is the use of materials and methods of construction to reduce interior noise impacts. It includes walls, windows, doors, ceilings, and floors that have been treated to reduce sound transmission into a building (see Figure 7). Acoustical construction primarily uses dense materials and air spaces within materials to reduce noise levels. In Walnut Creek, such construction has commonly been required of new developments along Ygnacio Valley Road.

Sound Transmission Class (STC) is used as a measure of a material's ability to reduce sound. The Sound Transmission Class rating is equal to the number of decibels a sound is reduced as it passes through a material and is an official rating endorsed by the American Society of Testing and Measurement. Enough information is available for the City to compile a list of noise reducing materials and construction techniques and their STC ratings. Such a list could be used for reference and to aid citizens in reducing noise within their homes.

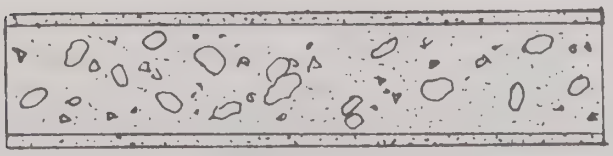
Common Stud Wall
STC = 35
Cost = .87/Ft^2



Staggered Stud Wall
STC = 39
Cost = 1.12/Ft^2



Staggered Stud Wall
With Absorbent Blanket
STC = 43
Cost = 1.25/Ft^2



7" Concrete Wall
STC = 52
Cost = 1.97/Ft^2

Wall types with STC rating and approximate cost.

Figure 7

Acoustical construction can be an expensive technique, especially when added to an existing building; however, it need not be prohibitively expensive in new construction, and it is one of the most effective ways of reducing interior noise. However, it is not necessarily the most desirable since it alone does nothing to reduce exterior noise levels.

Noise Barriers

A noise barrier is an obstacle placed between a noise source and a receiver. It works by interrupting the path of the noise. Barrier types include berms made of sloping mounds of earth, walls and fences constructed of a variety of materials, thick plantings of trees and shrubs, and combinations of these materials. The choice between these depends on a variety of factors, including the desired level of sound reduction, space, cost, safety, and aesthetics.

To be effective, a barrier must block the "line of sight" between the highest point of a noise source, such as a truck's exhaust stack, and the highest point of the receiver (see Figure 8). To be most effective, a barrier must also have reasonable density and be impervious to air.

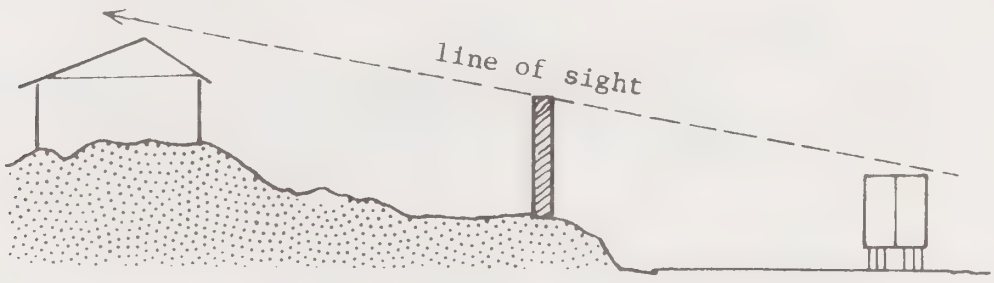
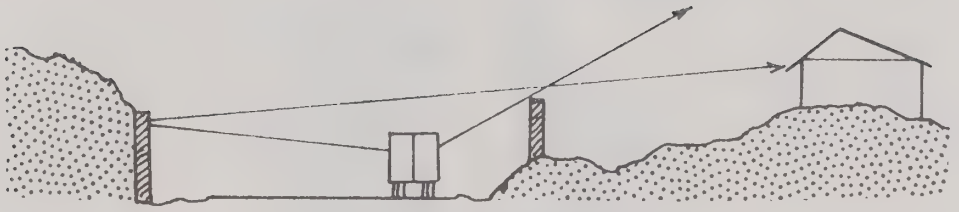


Figure 8 To be effective a barrier must block the "line of sight."

Barrier walls and fences can reduce exterior noise as much as 15 dB(A). They require little space or maintenance, but may be aesthetically unappealing and can reflect noise to the other side of the road. The cost of a fence or wall-type barrier can vary considerably, but in 1975, fell in the range of $15-$30 per linear foot for precast concrete panels; $5 per linear foot for wood; and from $50-$150 for concrete block barriers. Both the Diablo Shadows and Broadmoor developments in Walnut Creek utilize precast concrete panels.

An earth berm, a long mound of earth running parallel to the roadway, is another type of barrier. Berms range from 5 to 50 ft. in height and can provide noise attenuation of up to 15 dB(A). They have some advantages over walls. Instead of reflecting noise from one side of the highway to the other as walls do, berms deflect sound upwards (see Figure 9). Berms can also satisfy a portion of normal landscaping requirements.



Wall barriers may reflect sound from one side of a roadway to the other.

Figure 9

The cost of building a berm in 1975 was about $1.00/cu.yd. when the earth is at the site, plus the cost of land, seeding, planting, and maintenance. It costs approximately 2.3¢ per square foot per year to maintain a berm. Berms require a great deal of land and for that reason are not usually practical in Walnut Creek. However, if used in conjunction with walls or fences (see Figure 10), they provide a compromise solution which combines the advantages of both, while alleviating the disadvantages.

It should be noted that noise barriers are often unable to provide shielding for the higher stories of high-rise buildings (see Figure 11). In such cases, distance may be the only means of reducing noise besides acoustical design and construction.

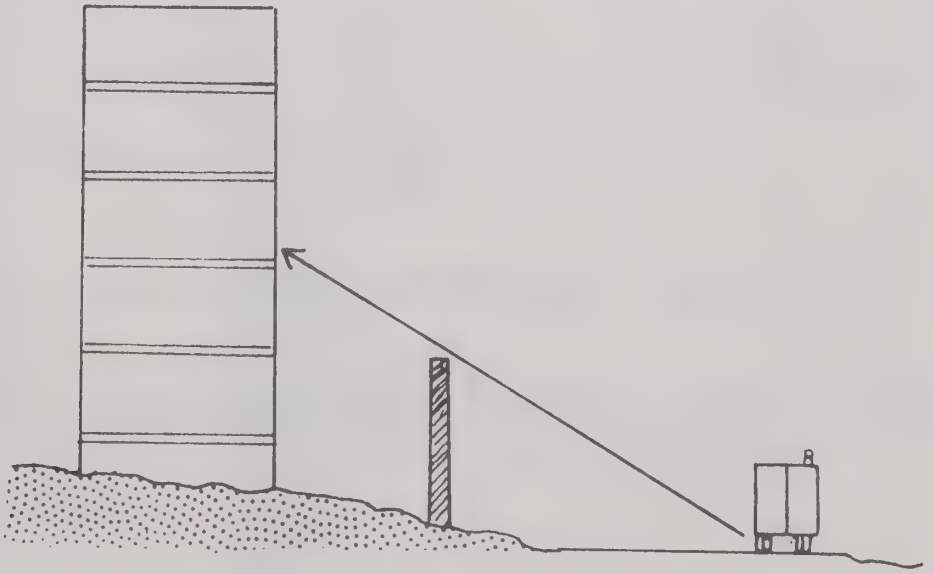
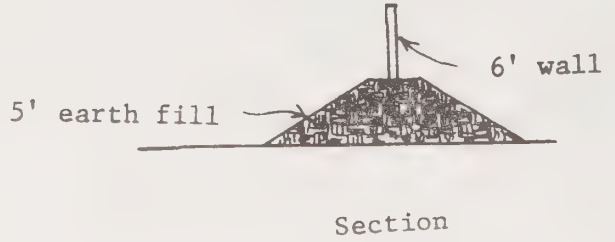


Figure 11

Noise barriers can shield only the lowest floors of a building.

An aesthetic treatment of a noise barrier
near residences in flat terrain.

Figure 10



Section

RECOMMENDATIONS AND IMPLEMENTATION PROGRAMS

State Government Code Section 65302(g) provides that a noise element must include conclusions regarding appropriate site or route selection and the effect of noise on compatible land uses. The standards shown on page 4 of this Element are the City's conclusions regarding noise levels which are compatible with various land uses; this section explains how these noise levels will be achieved in new developments and in existing impacted areas. Conclusions regarding route selection are contained in the last part of this section.

New Residential and Commercial Development

To implement the standards shown on page 4, all residential projects located within the 60 dB(A) contour should be required to prepare an acoustical analysis demonstrating that interior noise levels (due to exterior noise) are no higher than 45 dB(A). Such an analysis may merely demonstrate that the materials used in construction are adequate to reduce interior noise levels to 45 dB(A). Similarly, all commercial projects within the 70 dB(A) contour should be required to demonstrate that interior noise levels (due to exterior noise) are no higher than 55 dB(A). Further, if economically feasible, developers should attempt to attain exterior noise levels no higher than 60 dB(A) in residential areas. Maps at a scale of 300 feet to one inch are available in the Community Development Department to determine which buildings are within the 60 dB(A) and 70 dB(A) contours.

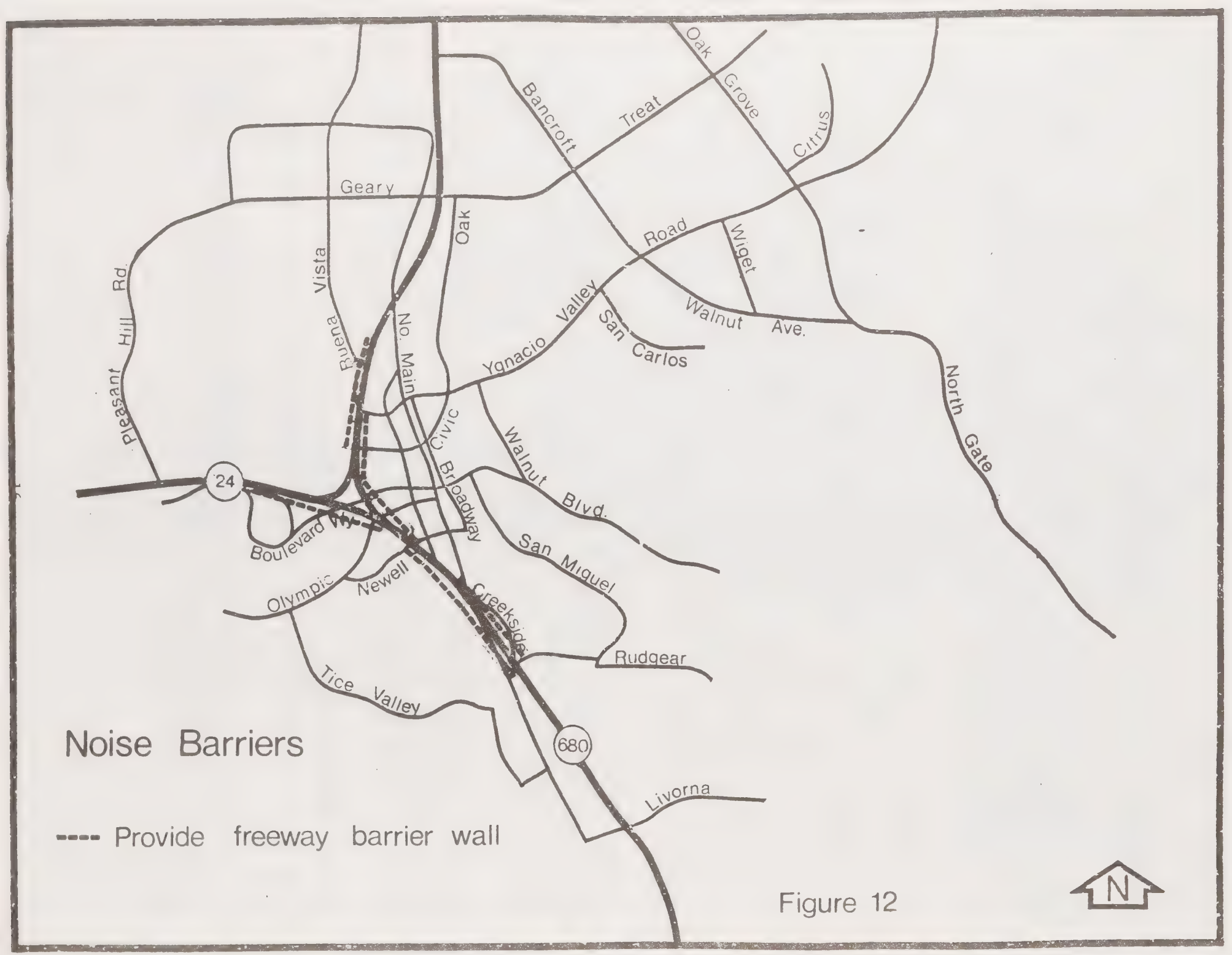
As noted above, the California Administrative Code already requires an acoustical study for new multifamily developments in high noise areas. Thus, this policy would extend this requirement to single-family homes and to commercial developments. The City has already required noise studies for large single-family projects through the environmental impact process; both the Diablo Shadows and Broadmoor projects, for instance, were required to provide noise barriers and acoustical construction.

Since the existing state noise standards are enforced by the City's Code Enforcement Division, it is suggested that this policy be implemented through an amendment to the building code. Prior to its adoption, however, the City should prepare a reference publication listing noise-reducing materials and construction techniques and their STC ratings. With such a listing, citizens may easily calculate the kind of construction necessary to reduce interior noise to acceptable levels.

Existing Impacted Areas

A variety of techniques are proposed to reduce levels within existing impacted areas.

1. Establish a priority list of existing impacted areas, and provide noise barriers as financially feasible. Utilizing the City's noise contour maps, the following areas have been tentatively identified as having the highest priority for reduction of noise levels (see Figure 2):


Oak
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Citrus
Geary
Road
Wiget
Oak
Vista
Rd.
Pleasant Hill
Ruena
No. Main
Valley
Walnut Ave.
San Carlos
Ygnacio
North Gate
Civic
Broadway
Walnut Blvd.
24
Boulevard
San Miguel
Olympic
Newell
Creekside
Rudgear
Tice Valley
680
Livorna
Noise Barriers
---- Provide freeway barrier wall
N

Figure 12

AREA	MAP	NUMBER OF UNITS
1. Creekside Drive Apartments	12	835
2. Kaiser Hospital	9	-
3. Oakland Blvd.-Almond Ave. (Apts. and SF)	9	310
4. San Juan Avenue, Parkside (Apts. and SF)	8	280
5. West of I-680-Lilac Drive (SF)	12	160
6. Saranap Area and Boulevard Way (Apts. and SF)	8	160
7. Alma Avenue Area (SF)	9	115

Because these areas are all impacted due to noise from an elevated freeway, techniques available for noise reduction are limited. Noise barriers adjacent to the developments would be ineffective unless they were high enough to extend 6 to 10 feet above the pavement of the freeway (which, in most cases, would total 25 to 30 feet).

The most effective solution in these problem areas appears to be an 8 to 10 foot concrete block barrier wall along the freeway in the areas indicated on Figure 12. The expense of this project would be considerable. Three sources may be available:

a. Caltrans. Funds have been available in the Caltrans budget for noise attenuation measures along existing freeways. In 1975, three locations in Walnut Creek were being considered for noise barriers (although the precise locations were not specified). After the City has adopted its priorities, it would be appropriate for the City to again approach Caltrans and urge that the City's projects be given high priority.

b. City Capital Improvement Budget. Noise barriers could be funded out of the City's CIP Budget, depending on overall City priorities.

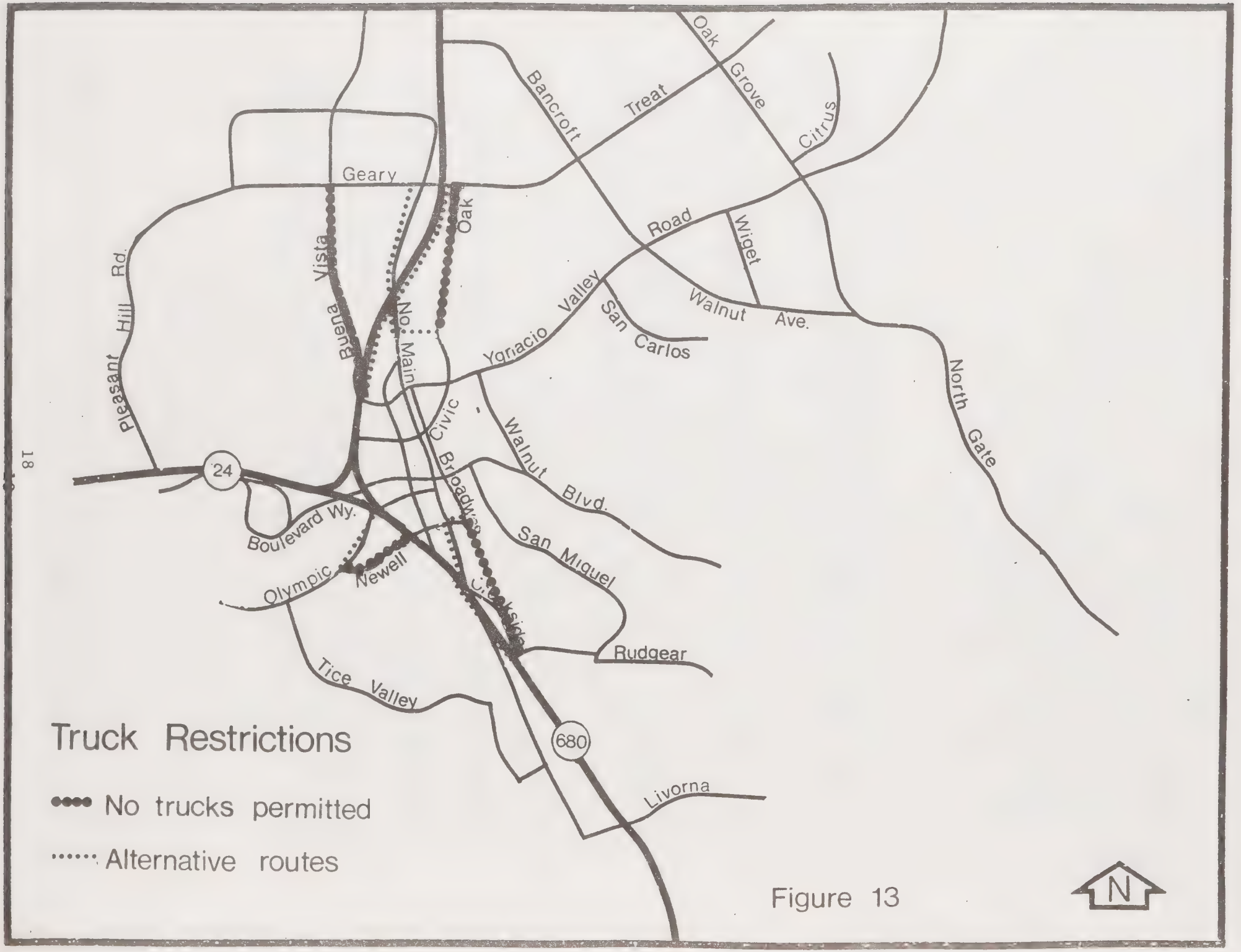
c. Assessment District. Owners of property in impacted areas might form an assessment district to bear at least a portion of the cost of noise barriers.

2. Where traffic will not impact other residential streets and alternate routes are available, divert truck traffic from impacted residential streets.

Trucks comprise a large part of the noise generated by busy streets. The Walnut Creek Traffic Code allows trucks to be banned from certain streets, and all but local truck traffic is now prohibited on Homestead, Walnut Boulevard, San Miguel, Walker, and Castle Hill Road. In the Walnut Creek Planning Area, it appears feasible to divert truck traffic from at least three additional streets (see Figure 13):

STREET	DIVERTED TO:
Buena Vista	North Main Street and I-680
Oak Road	North Main Street and I-680
Newell Avenue	Olympic Boulevard

Of those streets traffic is diverted to, only Olympic Boulevard has a substantial number of residences. However, most do not front on Olympic, and they are set back much farther than are the homes on Newell.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Ygnacio Valley
San Carlos
Walnut Ave.
North Gate
Civic
Broadway
Walnut Blvd.
24
Boulevard Wy.
Olympic
Newell
San Miguel
Rudgear
Tice Valley
680
Livorna
Truck Restrictions
No trucks permitted
Alternative routes
N

Figure 13

Should South Broadway be extended to Rudgear Road, prohibiting truck traffic should be considered, depending on the noise impacts caused by the proposed extension. If they are prohibited, trucks should be diverted to North Main Street and Newell Avenue (see Figure 14).

3. Determine routes for construction vehicles to major sites, and limit hours of construction.

When construction vehicles must pass through a residential area, routes should where appropriate be established which result in annoyance to the fewest number of people. The Municipal Code now limits the hours allowed for construction from 6:30 AM to 7:00 PM. In the past, hours have been further limited to 8:00 AM to 4:30 PM by conditions placed on the project. These limited construction hours should be continued wherever possible.

4. Encourage the California Highway Patrol to intensify its enforcement of noise emission standards, particularly for motorcycles and trucks.

Trucks and motorcycles are the most common noise offenders, often due to illegal exhaust modifications. The CHP currently has major responsibility for enforcing noise standards, and the Patrol should be encouraged by the City to increase its enforcement efforts.

5. Support the efforts of the State of California to continue reducing allowable noise emissions from motor vehicles.

It is the State of California's responsibility to set vehicle noise emission standards. Standards allowed now are the following:

(California State Motor Vehicle Code)

1972 VEHICLE OPERATING NOISE LIMITS

Type of Vehicle	Speed of 35 mph or less (dB(A) at 50 feet)	Speed of more than 35 mph (dB(A) at 50 feet)
Trucks and Busses Before January 1, 1973	88	90
On and after January 1, 1973	86	90
Motorcycles	82	86
Passenger Cars	76	82

The State plans to systematically reduce these noise levels over the next ten years. By 1990, the State hopes to attain a maximum noise level of 70 dB(A) outside all residential developments.

Individual noise sources in motor vehicles that produce the overall noise levels are fairly well defined, and the automobile manufacturing industry has developed concepts for noise reduction. Reducing vehicle noise at the source would be the largest single step that could be taken to reduce exterior noise levels in the City of Walnut Creek. Calculations show that if these noise standards continue to be reduced, noise levels by 1990 will be less than they are today - despite a doubling of traffic on some streets. Thus, it is important that the City continue to support the State's efforts to reduce allowable noise emissions.

New Roads, Road Widenings, and Commercial Development

In order to limit the impact of new roads, road widenings and commercial development on the noise environment of the City, the following policies are proposed:

1. A road widening, a new road, or a commercial development may be considered to have caused a noise impact when either of the following occur:

a. Noise levels in impacted areas (residential areas within the 60 CNEL contour and commercial areas within the 70 CNEL contour) are raised by more than five decibels.

b. Noise levels in unimpacted areas are raised by more than five decibels and that increase causes the area to become impacted. Thus, an increase in noise from 35 to 55 decibels in an area would not be considered an impact, while an increase from 57 to 62 decibels would.

Five decibels is the increase necessary before a significant change in noise levels is noted. It is felt that increases which do not make an area impacted do not need to be mitigated.

It should be noted that these standards apply to noise caused by both traffic and fixed point sources, such as air conditioners and generators. While traffic generated by a single commercial development would rarely cause increases as great as five decibels, noise from an air conditioner in the project might cause such an increase. New roads and road widenings, on the other hand, often cause increases as great as five decibels.

2. If increases in noise due to new roads, road widenings, or commercial development exceed the above standards, wherever economically feasible, the City, Caltrans, or other responsible party should provide mitigating measures as needed to maintain the existing noise level.

Such measures may include the noise barriers or acoustical construction discussed previously. They may also include specific design measures for the road or freeway (a depressed freeway, for instance) or operational measures (eliminating trucks). If more than one route is available for a road or other transit route, and one alternative has fewer impacts than others that route with the fewest impacts should be chosen wherever economically feasible.

Provisions for Revisions

People may become less or more tolerant of noise in the future, and these changes in attitudes may be reflected periodically in revisions to the noise standards contained in this Element.

In addition, the noise levels shown in this Element will undoubtedly change as traffic conditions and noise emission standards vary. Thus, it is recommended that the contours shown here be re-evaluated at least every five years, and that new maps be produced showing existing conditions.

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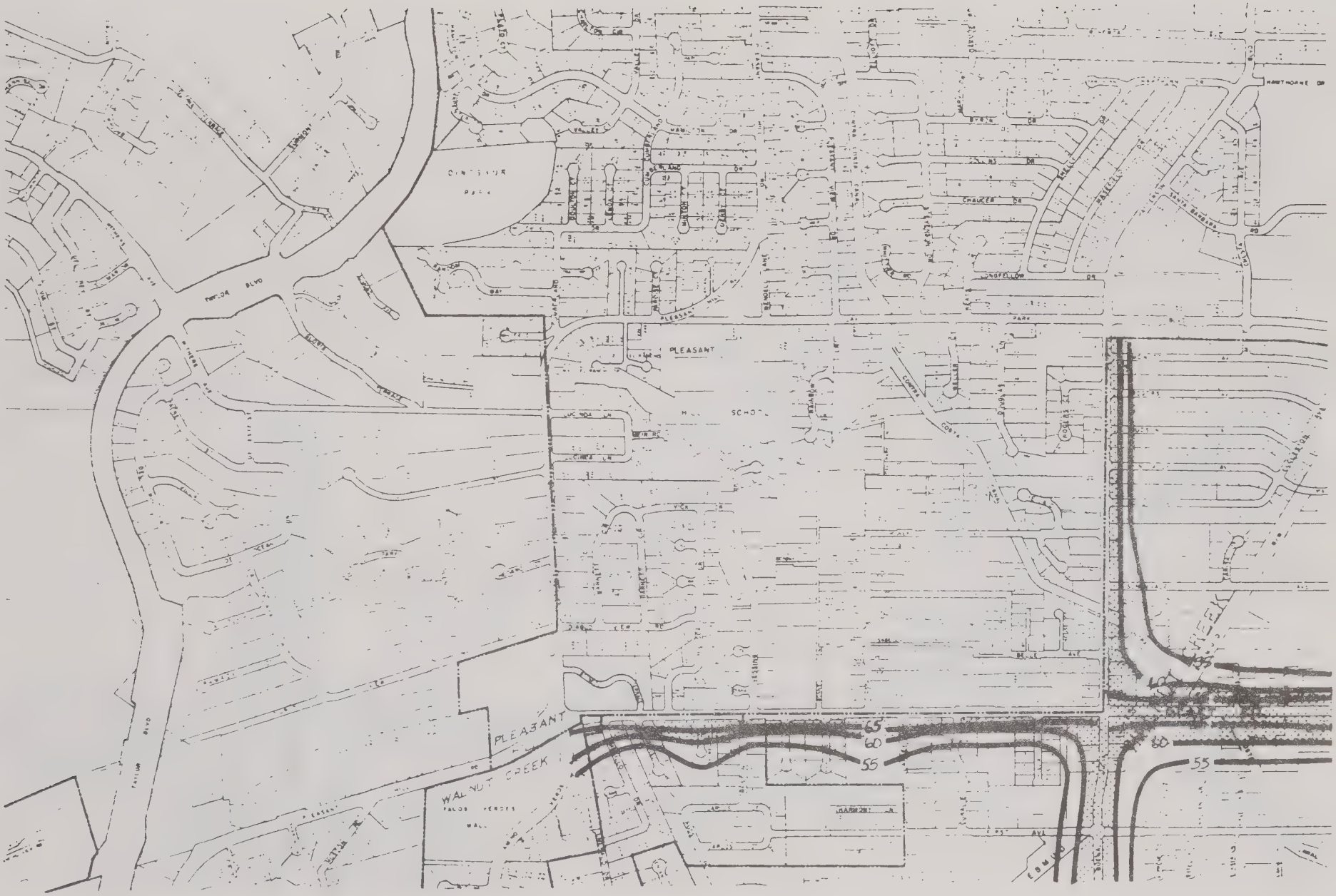
Base Map Index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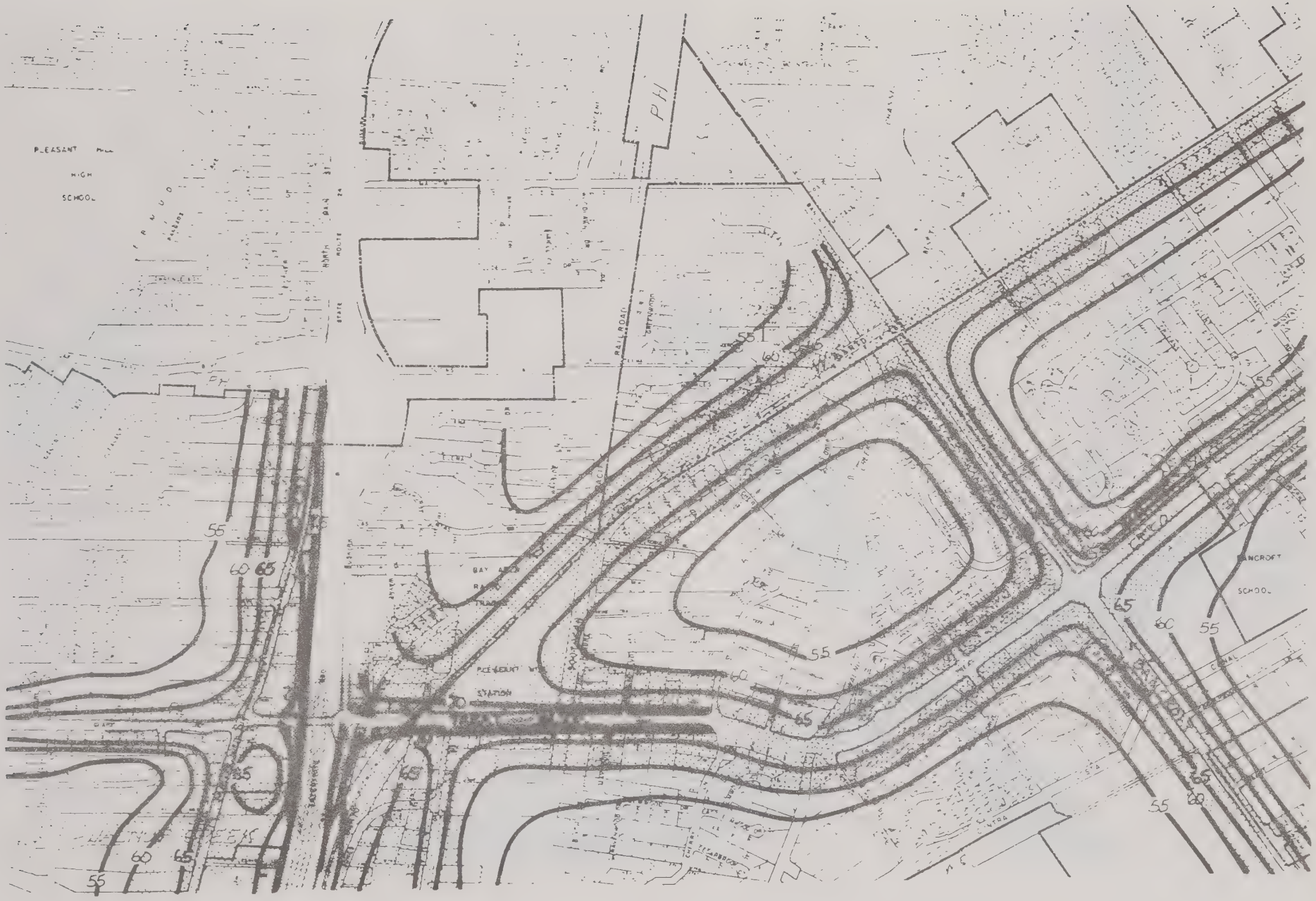
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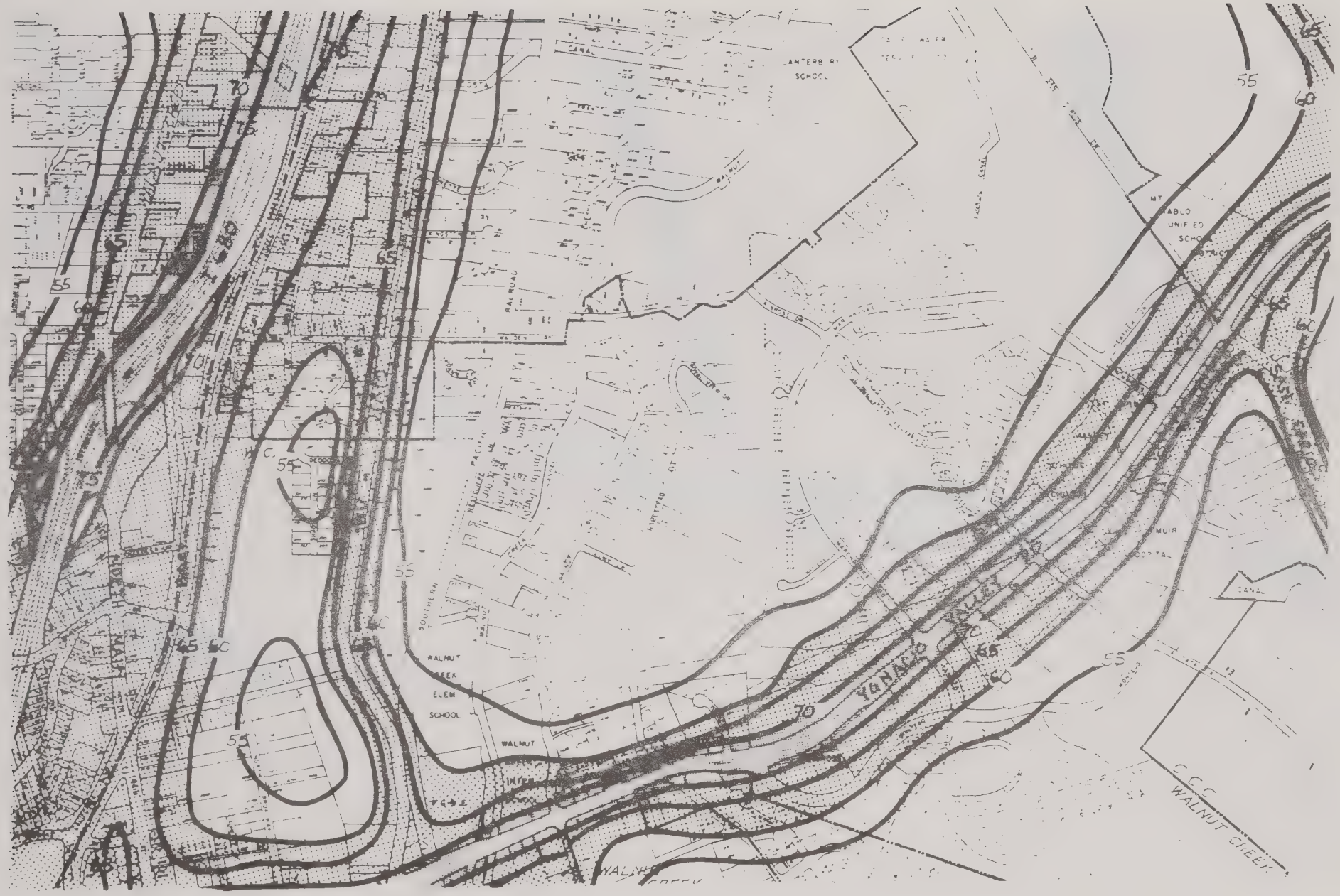
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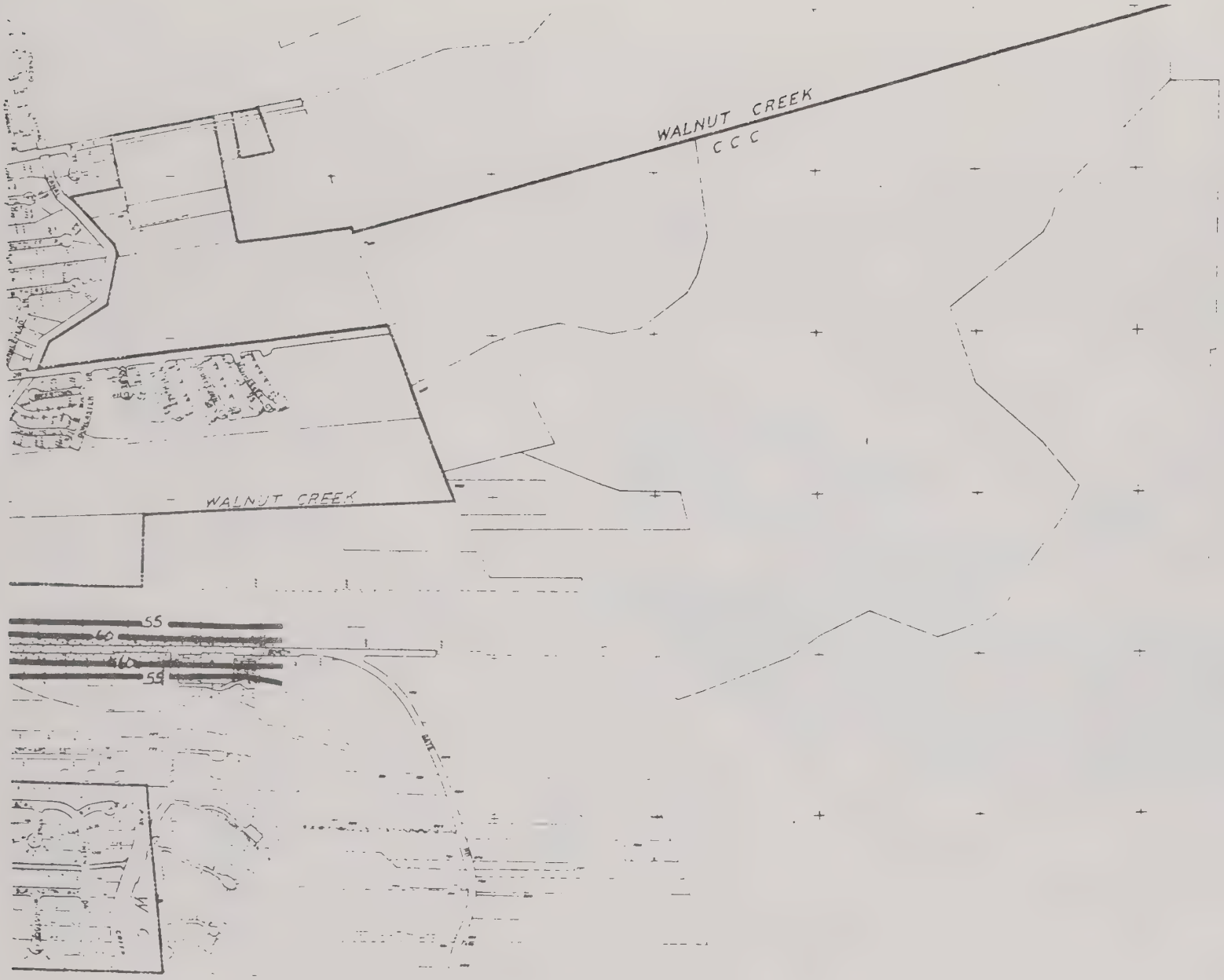
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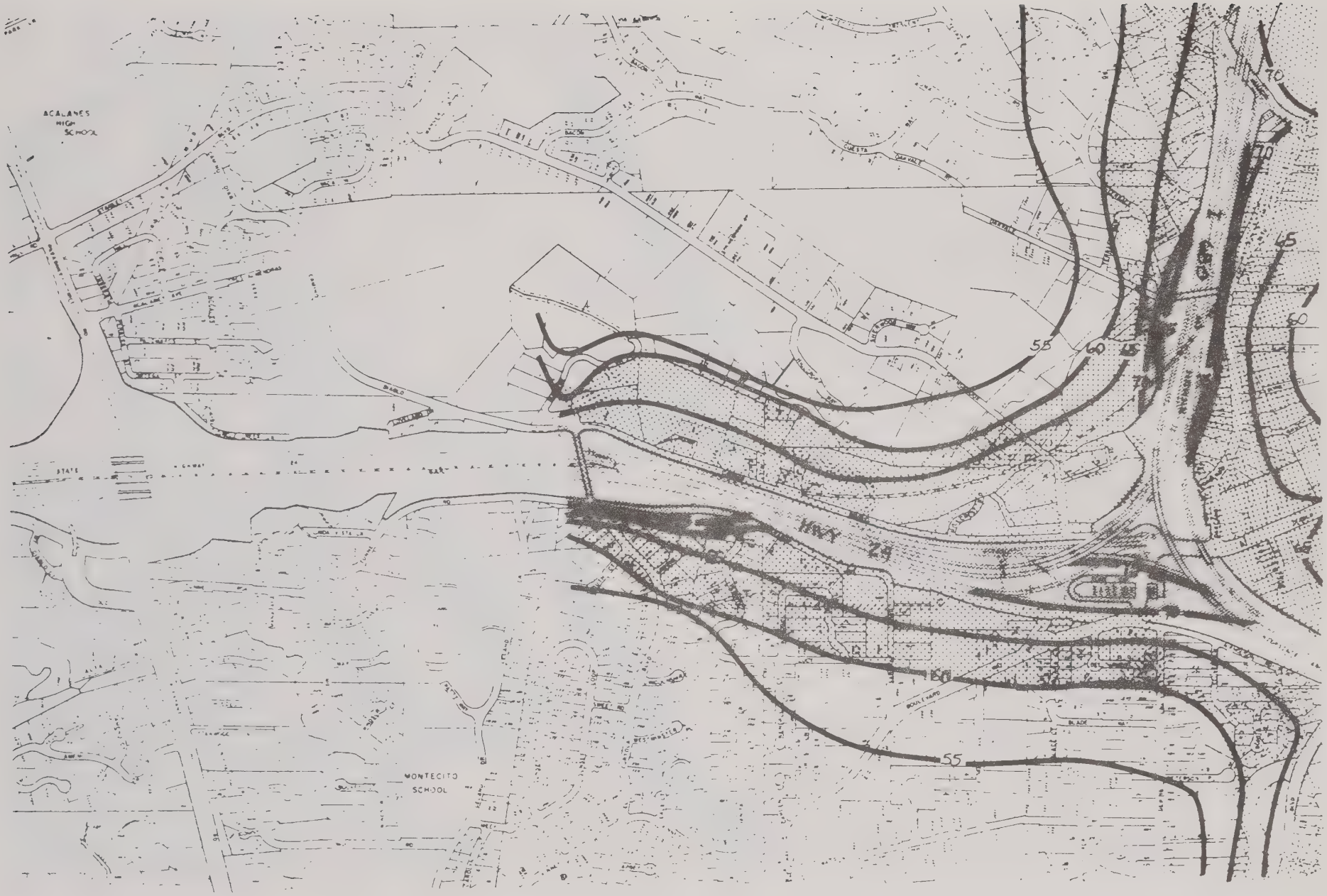
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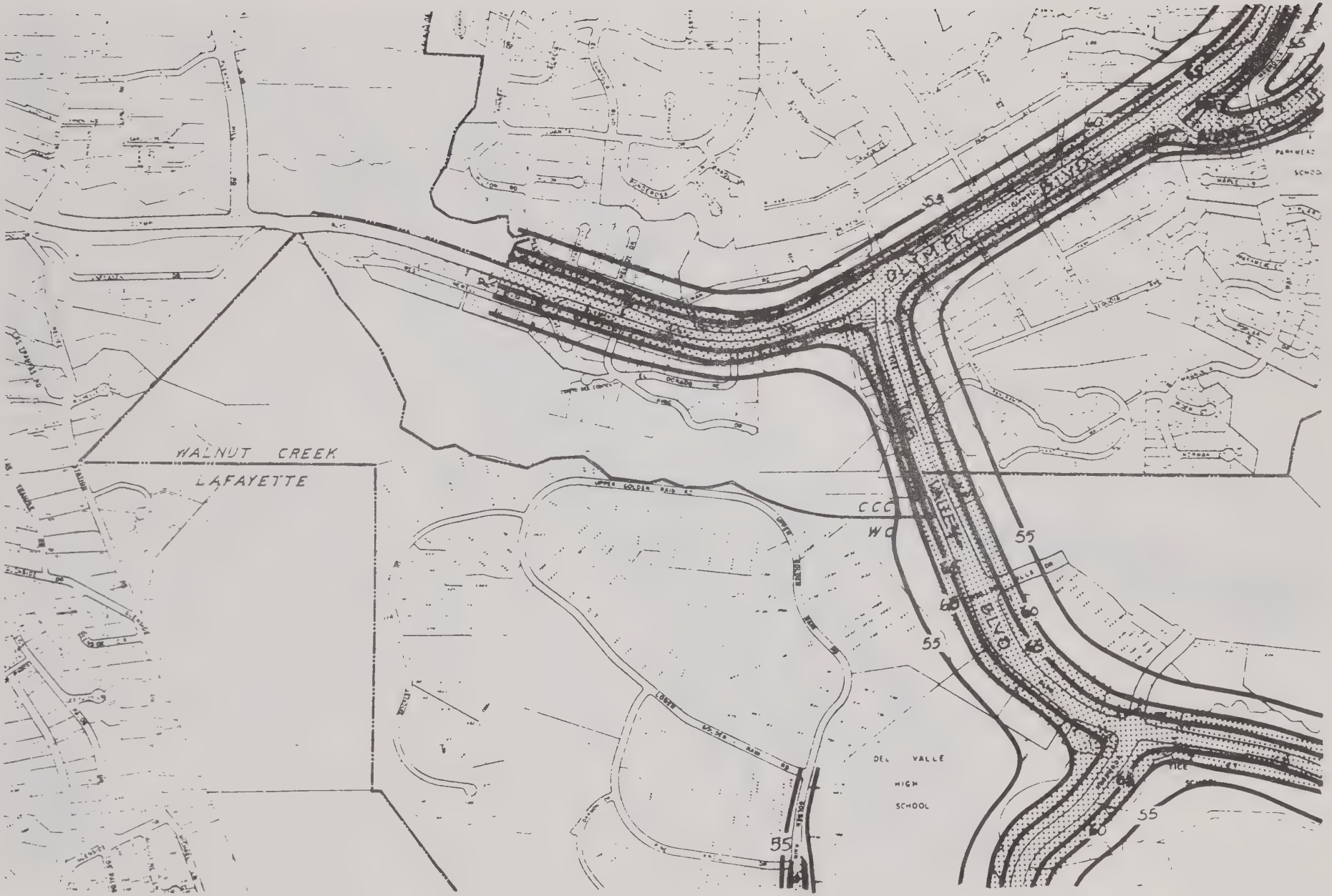
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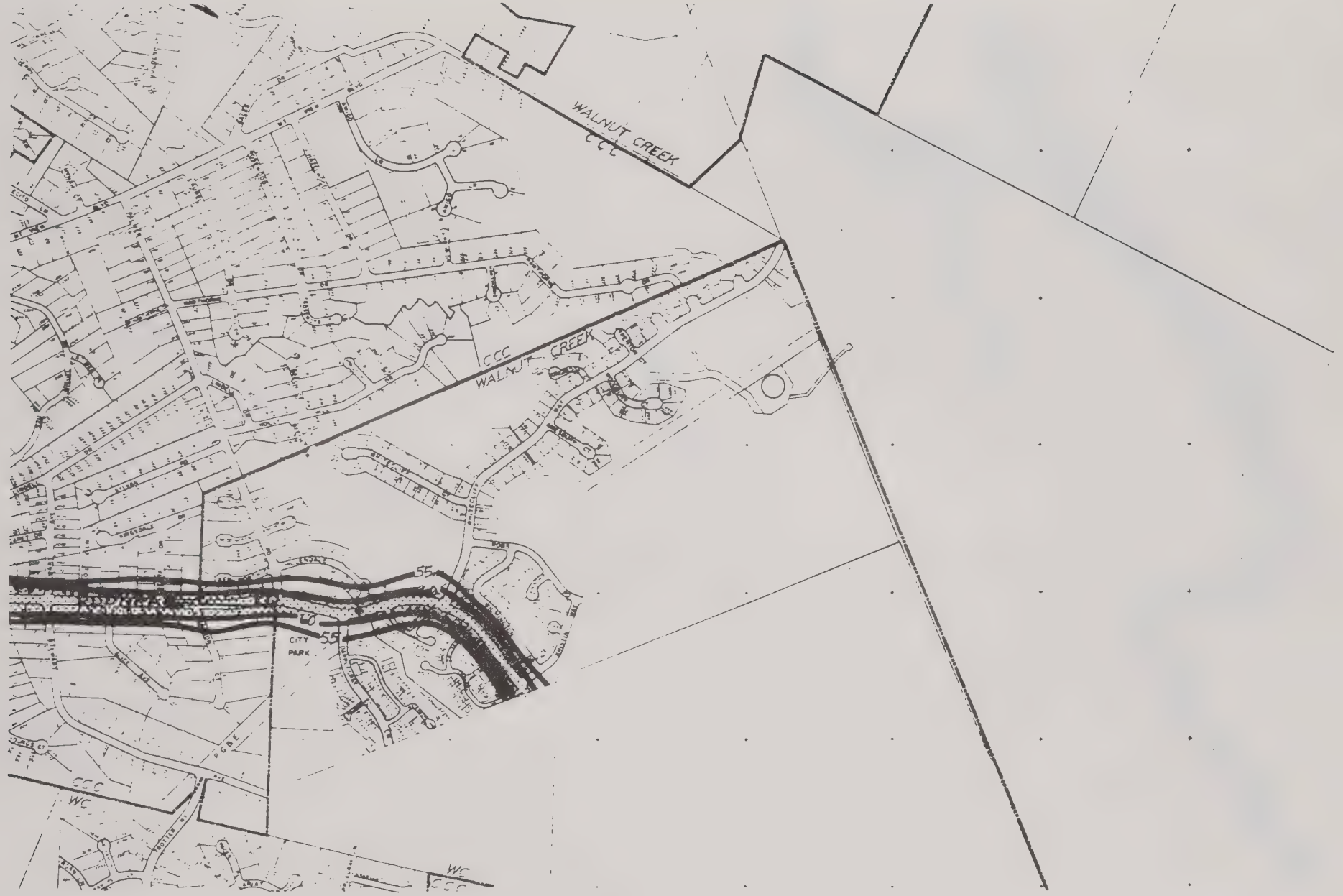
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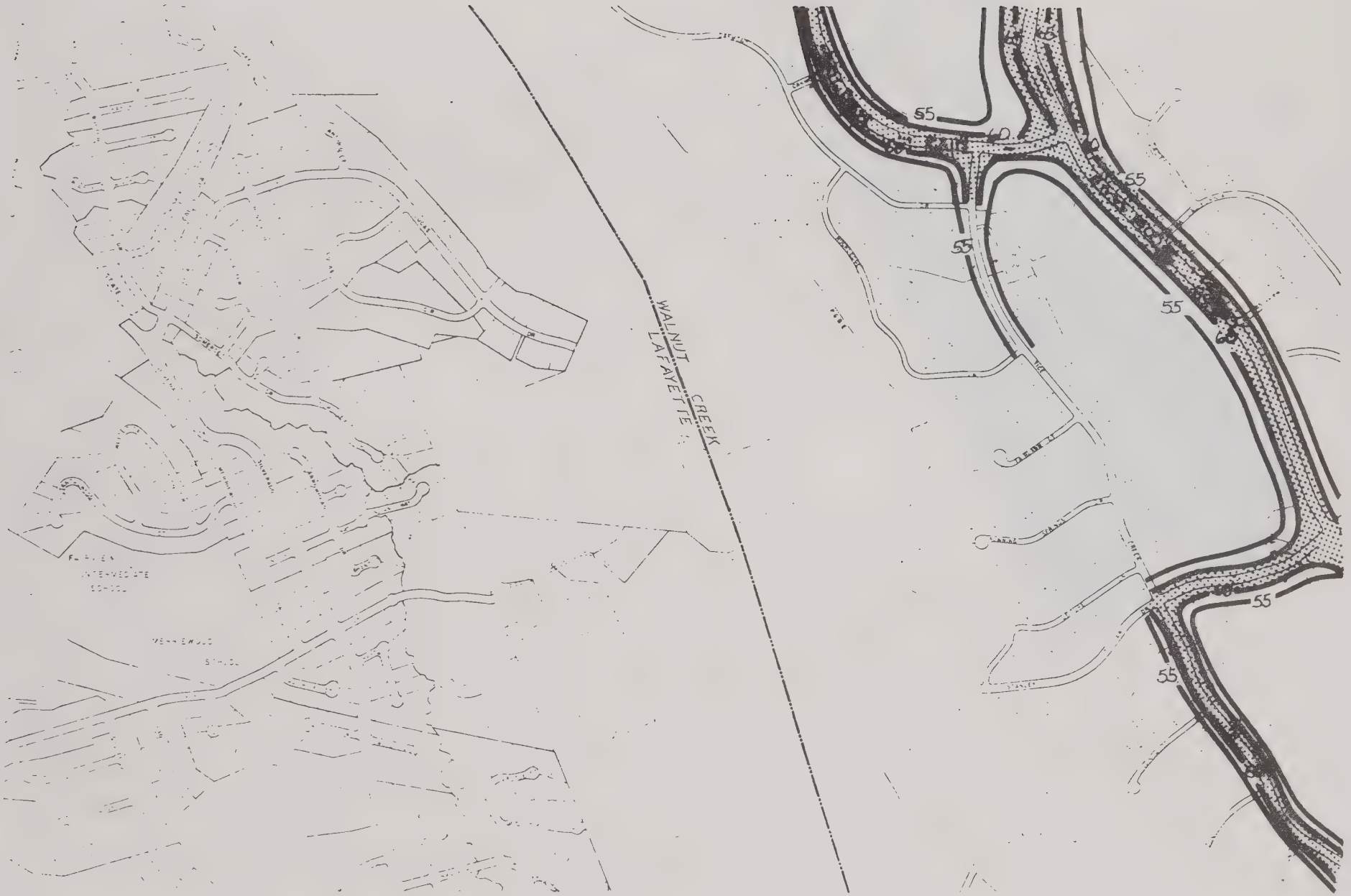
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